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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,938	02/14/2002	Steven L. Seed	0092-US-01	5330

83579 7590 12/28/2010
LEVEL 3 COMMUNICATIONS, LLC
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EXAMINER

BILGRAMI, ASGHAR H

ART UNIT	PAPER NUMBER
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2443

NOTIFICATION DATE	DELIVERY MODE
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12/28/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/073,938	Applicant(s) SEED ET AL.	
	Examiner ASGHAR BILGRAMI	Art Unit 2443	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-12,14-18,20-25,27-34,36-40,42-47,49-55,57,58 and 66-84 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-12,14-18,20-25,27-34,36-40,42-47,49-55,57,58 and 66-84 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/10/2010</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 12/10/2010 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 5-12, 14-18, 20-25, 27-34, 36-40, 42-47, 49-55, 57, 58, 66-84 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jungck (U.S. Pub. No. 2005/0021863) and Sim (U.S. Pub. No. 2003/0031176).

4. As per claims 1, 16, 23, 38 & 45 Jungck disclosed a method/System for managed object replication and delivery in a system comprising a network having one or more parent server sites (paragraphs.19) and one or more edge server sites distinct from said parent server sites(paragraph.25), the method comprising: (A) directing a request by a client for an object to an optimal edge server site in the network (paragraphs. 27, 35 & 63), and (B) if the edge server site does not have the requested

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object, then said particular edge server site redirecting the client request to parent server site in the network distinct from the edge server site {request is redirected to the parent server that servers the object to the client } and wherein the requested object is served to the client from the server site other than the particular edge server site server {from which the requested content is served}. (paragraphs.56 & 57). However Jungck did not explicitly disclose (C) if the edge server site does not have the requested object, conditionally replicating a portion of the requested object to the edge server site from the parent server site in the network, wherein the portion of the requested object is replicated on the particular edge server site when the dynamic measure of popularity of the requested object exceeds a dynamic replication threshold, said dynamic replication threshold being based at least in part on at least one dynamic measure of capacity.

In the same field of endeavor Sim disclosed that if the edge server site does not have the requested object, conditionally replicating {{Sim clearly discloses that content is replicated to the nodes on the network based on popularity of the content therefore there is a presence of “dynamic measurement” which determines content's popularity}} portion of the requested object to the edge server site from the parent server site in the network (paragraph.138), wherein the portion of the requested object is replicated on the particular edge server site when the dynamic measure of popularity of the requested object exceeds dynamic replication threshold (paragraphs. 47, 52 and 138) {when it is measured that popularity of the requested object has exceeded the threshold set for an object to be considered popular only then that object is replicated}, said dynamic

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replication threshold being based at least in part on at least one dynamic measure of capacity (Paragraph.230) {dynamic measure of capacity with respect to the dynamic replication of popular content is disclosed by Sim which specifically states that less popular content is removed to make room for more popular and new content when the available storage is running low. Here multiple dynamic aspects of invention are at play (i) identification of popular content (ii) Identification of the storage capacity of the storage space that hold the popular content (iii) When the storage capacity is running low (I.E dynamic measure of capacity of the storage space in relation to the content being stored), comparison and identification of less popular content with more popular content and the removal of less popular to make room for more popular/relevant content in the storage space}.

It would have been obvious to one in the ordinary skill in the art at the time the invention was made to have incorporated to replicate an object at the edge server based on wherein the portion of the requested object is replicated on the particular edge server site when the dynamic measure of popularity of the requested object exceeds a dynamic replication threshold, said dynamic replication threshold being based at least in part on at least one dynamic measure of capacity as disclosed by Sim in a method for managed object replication and delivery as disclosed by Jungck in order to make the delivery system more scalable resulting in lower traffic load on the network and providing most relevant & popular content to the requester more quickly making the system more robust and efficient.

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5. As per claims 2, 24 & 46 Jungck-Sim disclosed the method of claim 1, wherein redirecting the client request to said first server site comprises said particular edge server site redirecting the client request to a parent server site in the network (Jungck, paragraph.57).

6. As per claims 3, 25 & 47 Jungck-Sim disclosed the method of claim 1, wherein if that parent server site does not have the requested object, then recursively redirecting the request until a parent server site in the network having the requested object is reached, and then serving the requested object to the client from the parent server that has the requested object (Jungck, paragraph.57).

7. As per claims 5, 27 & 49 Jungck-Sim disclosed the method of claim 1, wherein directing a request by a client for an object to particular edge server site comprises directing the request by the client for an object to a best or optimal edge server site (Jungck, paragraph.63).

8. As per claims 6, 28 & 50 Jungck-Sim disclosed the method of claim 5, wherein a best or optimal edge server comprises an edge server site selected using at least one of a determination based on a best repeater selector, the likelihood of a copy of the requested object being available at the edge server site, and the bandwidth between the edge server site and the client (Jungck, paragraphs.63 & 71).

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9. As per claims 7, 29 & 51 Jungck-Sim disclosed the method of claim 1, wherein said step of conditionally replicating the portion of the requested object to the particular edge server site comprises replicating the portion of the requested object to the particular edge server site from a parent server (Sim, paragraphs, 47 & 52).

It would have been obvious to one in the ordinary skill in the art at the time the invention was made to have incorporated to replicate an object at the edge server based on condition (I.E popularity) as disclosed by Sim in a method for managed object replication and delivery as disclosed by Jungck in order to make the delivery system more scalable resulting in lower traffic load on the network and providing most relevant & popular content to the requester more quickly making the system more robust and efficient.

10. As per claims 8, 9, 30, 31, 52 & 53 Jungck-Sim disclosed the method of claim 1, wherein said step of conditionally replicating comprises: if the requested object is determined to be popular based on said dynamic measure of popularity, and if the requested object is unavailable on parent server sites in the network, then replicating the portion of the requested object to a parent server site in the network from an origin server site (Sim, paragraphs, 47 & 52).

It would have been obvious to one in the ordinary skill in the art at the time the invention was made to have incorporated to replicate an object at the edge server based on wherein the portion of the requested object is replicated on the particular edge server site when the dynamic measure of popularity of the requested object exceeds a

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dynamic popularity threshold as disclosed by Sim in a method for managed object replication and delivery as disclosed by Jungck in order to make the delivery system more scalable resulting in lower traffic load on the network and providing most relevant & popular content to the requester more quickly making the system more robust and efficient.

11. As per claims 10, 21, 32, 43& 54 Jungck-Sim disclosed the method of claim 1, wherein said dynamic measure of popularity of the requested object is popular (Sim paragraph.47 & 138) is determined using at least a request rate for the requested object (Jungck, paragraph.58).

12. As per claims 11, 12, 17, 18, 33, 34, 39, 40& 55 Jungck-Sim disclosed the system of claim 45, wherein at least one of the plurality of edge servers sites and the plurality of parent server sites deletes at least some part of an object if the object is no longer popular, as determined based on said dynamic measure of popularity of the requested object (Sim, paragraphs, 47 & 230).

It would have been obvious to one in the ordinary skill in the art at the time the invention was made to have incorporated wherein at least one of the plurality of edge servers sites and the plurality of parent server sites deletes at least some part of an object if the object is no longer popular, as determined based on said dynamic measure of popularity of the requested object as disclosed by Sim in a method for managed object replication and delivery as disclosed by Jungck in order to make the delivery system

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more scalable and efficient resulting in adequate storage space for providing most relevant & popular content to the requester making the system more robust and efficient.

As per claims 14, 20, 36, 42 & 57 Jungck-Sim disclosed the method of claim 1, wherein said step of conditionally replicating the portion of the requested object on said particular edge server site comprises: replicating the portion of the requested object when said dynamic measure of popularity of the requested object is great than the dynamic replication threshold and there is enough storage on said particular edge server site to replicate the portion of the requested object; otherwise, if there is not enough storage to replicate the requested object, then i) comparing the dynamic measure of popularity of the requested object against a dynamic measure of popularity of a least popular object in the storage, ii) if the dynamic measure of popularity of the requested object exceeds the popularity of the least popular object in the storage, deleting at least some part of the least popular object from the storage, and then iii) repeating i) and ii) until enough storage is available for the portion of the requested object or until the dynamic measure of popularity of the requested object is less than the dynamic measure of popularity of the least popular object in the storage, and iv) replicating the portion of the requested object on said particular edge server site if there is enough storage on said particular edge server site (Sim, paragraphs, 47 and 230) {dynamic measure of capacity with respect to the dynamic replication of popular content is disclosed by Sim which specifically states that less popular content is removed to

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make room for more popular and new content when the available storage is running low. Here multiple dynamic aspects of invention are at play (i) identification of popular content (ii) Identification of the storage capacity of the storage space that hold the popular content (iii) When the storage capacity is running low (I.E dynamic measure of capacity of the storage space in relation to the content being stored), comparison and identification of less popular content with more popular content and the removal of less popular to make room for more popular/relevant content in the storage space}.

It would have been obvious to one in the ordinary skill in the art at the time the invention was made to have incorporated wherein said step of conditionally replicating the portion of the requested object on said particular edge server site comprises: replicating the portion of the requested object when said dynamic measure of popularity of the requested object is great than a dynamic threshold popularity and there is enough storage on said particular edge server site to replicate the portion of the requested object; otherwise, if there is not enough storage to replicate the requested object, then i) comparing the dynamic measure of popularity of the requested object against a dynamic measure of popularity of a least popular object in the storage, ii) if the dynamic measure of popularity of the requested object exceeds the popularity of the least popular object in the storage, deleting at least some part of the least popular object from the storage, and then iii) repeating i) and ii) until enough storage is available for the portion of the requested object or until the dynamic measure of popularity of the requested object is less than the dynamic measure of popularity of the least popular object in the storage, and iv) replicating the portion of the requested object on said

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particular edge server site if there is enough storage on said particular edge server site as disclosed by Sim in a method for managed object replication and delivery as disclosed by Jungck in order to make the delivery system more scalable and efficient resulting in adequate storage space for most relevant object based on its popularity and thus providing most relevant & popular content to the requester making the system more robust and efficient.

13. As per claims 15, 22, 37, 44& 58 Jungck-Sim disclosed the method of claim 1, wherein the step of serving the requested object is performed separately from the step of conditionally replicating the portion of the requested object (Jungck, paragraphs.63 & 71).

14. As per claim 66 Jungck-Sim disclosed the method of claim 1 wherein the server site from which the requested object is served to the client is a peer server site of the particular edge server site (Jungck, paragraph.61)

15. As per claim 67 Jungck-Sim disclosed the method of claim 1 wherein the server site from which the requested object is served to the client is the first server site (Jungck, paragraph.61).

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16. As per claim 68 Jungck-Sim disclosed the method of claim 1 wherein the server site from which the requested object is served to the client is a peer of the first server site (Jungck, paragraph.61).

17. As per claim 69 Jungck-Sim disclosed the method of claim 1 wherein the step of conditionally replicating the portion of the requested object on the particular edge server site replicates the portion of the requested object from a peer server site of the particular edge server site (Sim, paragraphs. 47 & 52).

It would have been obvious to one in the ordinary skill in the art at the time the invention was made to have incorporated conditionally replicating the portion of the requested object on the particular edge server site replicates the portion of the requested object from a peer server site of the particular edge server site as disclosed by Sim in a method for managed object replication and delivery as disclosed by Jungck in order to make the delivery system more scalable resulting in lower traffic load on the network and providing most relevant & popular content to the requester more quickly making the system more robust and efficient.

18. As per claim 70 Jungck-Sim disclosed the method of claim 1 wherein the step of conditionally replicating the portion of the requested object on the particular edge server site replicates the portion of the requested object from a server site (Sim, paragraphs. 47 & 52).

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It would have been obvious to one in the ordinary skill in the art at the time the invention was made to have incorporated wherein the step of conditionally replicating the portion of the requested object on the particular edge server site replicates the portion of the requested object from a server site as disclosed by Sim in a method for managed object replication and delivery as disclosed by Jungck in order to make the delivery system more scalable resulting in lower traffic load on the network and providing most relevant & popular content to the requester more quickly making the system more robust and efficient.

19. As per claims 71, 74, 76, 78 and 80 Jungck-Sim disclosed the method of claim 1 wherein the dynamic measure of popularity of the requested object is based at least in part on one or more of: (a) a local dynamic measure of popularity of the object Sim, paragraph.197); and (b) information regarding the popularity of the object on other servers (Sim, paragraph.244).

It would have been obvious to one in the ordinary skill in the art at the time the invention was made to have incorporated wherein the dynamic measure of popularity of the requested object is based at least in part on one or more of: (a) a local dynamic measure of popularity of the object Sim, paragraph.197); and (b) information regarding the popularity of the object on other servers as disclosed by Sim in a method for managed object replication and delivery as disclosed by Jungck in order to make the delivery system more scalable resulting in lower traffic load on the network and

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providing most relevant & popular content to the requester more quickly making the system more robust and efficient.

20. As per claims 72, 73, 75, 77, 79 and 81 Jungck-Sim disclosed the method of claim 1 wherein the requested object comprises chunks, including initial chunks and remaining chunks, and wherein the portion of the requested object comprises only initial chunks of the object (Sim, Paragraph.138).

It would have been obvious to one in the ordinary skill in the art at the time the invention was made to have incorporated wherein the requested object comprises chunks, including initial chunks and remaining chunks, and wherein the portion of the requested object comprises only initial chunks of the object as disclosed by Sim in a method for managed object replication and delivery as disclosed by Jungck in order to make the delivery system more scalable and stable resulting in efficient management of the traffic load on the network and providing most relevant & popular content to the requester more quickly making the system more robust and efficient.

21. As per claims 82, 83 and 84 Jungck-Sim disclosed a method as recited in claim 1, wherein the at least one dynamic measure of capacity represents available capacity on the particular edge server (Sim, Paragraphs, 47 and 230) {dynamic measure of capacity with respect to the dynamic replication of popular content is disclosed by Sim which specifically states that less popular content is removed to make room for more popular and new content when the available storage is running low. Here multiple

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dynamic aspects of invention are at play (i) identification of popular content (ii) Identification of the storage capacity of the storage space that hold the popular content (iii) When the storage capacity is running low (I.E dynamic measure of capacity of the storage space in relation to the content being stored), comparison and identification of less popular content with more popular content and the removal of less popular to make room for more popular/relevant content in the storage space}.

Response to Arguments

22. Applicant's arguments filed 10/21/2010 have been fully considered but they are not persuasive.

23. Applicant argued that prior art failed to disclose the newly amended claim limitation wherein the portion of the requested object is replicated on the particular edge server site when the dynamic measure of popularity of the requested object exceeds dynamic replication threshold, said dynamic replication threshold being based at least in part on at least one dynamic measure of capacity.

As to applicant's argument at least paragraph 230 of Sim discloses this teaching and the examiner has explained the reasons in details in the above rejection.

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24. Applicant again alleged that the combination of Junck and Sim fails to establish a prima facie case of obviousness with respect to any claim of the present application.

As to applicant's argument **examiner advises the applicant focus on the similarities of the both prior arts** rather than looking at them separately in vacuum. Examiner has clearly defined both prior arts and they both deal with replication of the content in a network. Examiner has clearly pointed out that Jungck did not specifically consider the popularity aspect when replicating content on edge servers therefore prior art Sim was introduced to fill that vacuum with appropriate motivation to combine the two references to anticipate applicant's claimed invention. Therefore the 35 U.S.C. 103(a) rejection made in light of Jungck (U.S. Pub. No. 2005/0021863) and Sim (U.S. Pub. No. 2003/0031176) is appropriate and clearly anticipates the invention as claimed.

25. On pages 25 and 26 applicant cited paragraphs 47, 52, 138 and 230 and separately argued the teachings of those paragraphs against the amended claim limitation dealing with the dynamic replication threshold associated with the dynamic measure of capacity.

As to applicant's argument dynamic measure of capacity with respect to the dynamic replication of popular content is disclosed by Sim which specifically states that less popular content is removed to make room for more popular and new content when the available storage is running low. Here multiple dynamic aspects of invention are at play

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(i) identification of popular content (ii) Identification of the storage capacity of the storage space that hold the popular content (iii) When the storage capacity is running low (I.E dynamic measure of capacity of the storage space in relation to the content being stored), comparison and identification of less popular content with more popular content and the removal of less popular to make room for more popular/relevant content in the storage space.

Conclusion

26. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure is indicated in PTO form 892.

27. Applicant's future amendments need to comply with the requirements of MPEP § 714.02, MPEP § 2163.04 and MPEP § 2163.06.

"with respect to newly added or amended claims, applicant should show support in the original disclosure for the new or amended claims." See MPEP § 714.02 and § 2163.06 ("Applicant should * * * specifically point out the support for any amendments made to the disclosure."); and MPEP § 2163.04 ("If applicant amends the claims and points out where and/or how the originally filed disclosure supports the amendment(s), and the examiner finds that the disclosure does not reasonably convey that the inventor had possession of the subject matter of the amendment at the time of the filing of the application, the examiner has the initial burden of presenting evidence or reasoning to explain why persons skilled in the art would not recognize in the disclosure a description of the invention defined by the claims."). See *In re Smith*, 458 F.2d 1389, 1395, 173 USPQ 679, 683 (CCPA 1972) *In re Wertheim*, 541 F.2d at 262, 191 USPQ at 96 (emphasis added).

"The use of a confusing variety of terms for the same thing should not be permitted.

New claims and amendments to the claims already in the application should be scrutinized not only for new matter but also for new terminology. While an applicant is not limited to the nomenclature used in the application as filed, he or

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she should make appropriate amendment of the specification whenever this nomenclature is departed from by amendment of the claims so as to have clear support or antecedent basis in the specification for the new terms appearing in the claims. This is necessary in order to insure certainty in construing the claims in the light of the specification." Ex parte Kotler, 1901 C.D. 62, 95 O.G. 2684 (Comm'r Pat. 1901). See 37 CFR 1.75, MPEP § 608.01 (i) and § 1302.01.

Note that examiners should ensure that the terms and phrases used in claims presented late in prosecution of the application (including claims amended via an examiner's amendment) find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description, see 37 CFR 1.75(d)(1). If the examiner determines that the claims presented late in prosecution do not comply with 37 CFR 1.75(d)(1), applicant will be required to make appropriate amendment to the description to provide clear support or antecedent basis for the terms appearing in the claims provided no new matter is introduced."

"USPTO personnel are to give claims their broadest reasonable interpretation in light of the supporting disclosure." In re Morris, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023,1027-28 (Fed. Cir. 1997). MPEP § 2106. "

The examiner has cited particular columns and line numbers in the references as applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant, in preparing the responses, to fully consider each of the cited references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage disclosed by the examiner.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ASGHAR BILGRAMI whose telephone number is (571)272-3907. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tonia L.M. Dollinger can be reached on 571-272-4170. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. B./

Examiner, Art Unit 2443

/Asghar Bilgrami/

Examiner, Art Unit 2443